



Anti-Terrorism Advisory Council U.S. Attorney's Office Eastern District of Wisconsin

Web Photos That Reveal Secrets - Geotag

What is Geotag? The storage of location based data, in the form of Latitude and Longitude inside of images is called Geotagging; essentially tagging your photograph with the geographic location. This data is stored inside of the metadata of JPEG images and is useful for tying the photograph to a location.

When Adam Savage, host of the popular science program "MythBusters," posted a picture on Twitter of his automobile parked in front of his house, he let his fans know much more than that he drove a Toyota Land Cruiser.

Embedded in the image was a geotag, a bit of data providing the longitude and latitude of where the photo was taken. Hence, he revealed exactly where he lived. And since the accompanying text was "Now it's off to work," potential thieves knew he would not be at home.

Security experts and privacy advocates have recently begun warning about the potential dangers of geotags, which are embedded in photos and videos taken with GPS-equipped smartphones and digital cameras. Because the location data is not visible to the casual viewer, the concern is that many people may not realize it is there; and they could be compromising their privacy, if not their safety, when they post geotagged media online.

Mr. Savage said he knew about geotags. But he said he had neglected to disable the function on his iPhone before taking the picture and uploading it to Twitter. "I'd say very few people know about geotag capabilities," said Peter Eckersley, a staff technologist with the Electronic Frontier Foundation in San Francisco, "and consent is sort of a slippery slope when the only way you can turn off the function on your smartphone is through an invisible menu that no one really knows about."

Indeed, disabling the geotag function generally involves going through several layers of menus until you find the "location" setting, then selecting "off" or "don't allow." But doing this can sometimes turn off all GPS capabilities, including mapping, so it can get complicated.

The Web site ICanStalkU.com provides [step-by-step instructions](http://icanstalku.com/how.php#disable) (<http://icanstalku.com/how.php#disable>) for disabling the photo geotagging function on iPhone, BlackBerry, Android and Palm devices.

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A person's location is also revealed while using services like Foursquare and Gowalla as well as when posting to Twitter from a GPS-enabled mobile device, but the geographical data is not hidden as it is when posting photos.

A handful of academic researchers and independent Web security analysts, who call themselves "white hat hackers," have been trying to raise awareness about geotags by releasing studies and giving presentations at technology get-togethers like the Hackers On Planet Earth, or Next HOPE, conference held last month in New York.

By downloading free browser plug-ins like the Exif Viewer for Firefox (addons.mozilla.org/en-US/firefox/addon/3905/) or Opanda IExif for Internet Explorer (opanda.com/en/iexif/), anyone can pinpoint the location where the photo was taken and create a Google map.

Moreover, since multimedia sites like Twitter and YouTube have user-friendly application programming interfaces, or A.P.I.'s, someone with a little knowledge about writing computer code can create a program to search for geotagged photos in a systematic way. For example, they can search for those accompanied with text like "on vacation" or those taken in a specified neighborhood.

Because of the way photographs are formatted by some sites like Facebook and Match.com, geotag information is not always retained when an image is uploaded, which provides some protection, albeit incidental. Other sites like Flickr have recently taken steps to block access to geotag data on images taken with smartphones unless a user explicitly allows it.

But experts say the problem goes far beyond social networking and photo sharing Web sites, regardless of whether they offer user privacy settings.

"There are so many places where people upload photos, like personal blogs and bulletin boards," said Johannes B. Ullrich, chief technology officer of the SANS Technology Institute, which provides network security training and monitors the Internet for emerging security threats.

Protecting your privacy is not just a matter of being aware and personally responsible, said Mr. Sommer, the researcher. A friend may take a geotagged photo at your house and post it.

Questions/Comments/Suggestions should be addressed to:

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